In the Claims:

Please amend claim 5, as follows:

1. (Previously Presented) A method for obtaining in real time torques to be applied to joints of a leg of a biped walking system, the method being performed by modules and stored in a processor and comprising the steps of:

determining which leg or legs are in contact with the ground by a leg-motion determining module that uses data from a hip vertical accelerometer;

obtaining an attitude of the leg by a leg-attitude computing module that uses data from a hip horizontal accelerometer, a hip gyroscopic sensor and joint angle sensors;

obtaining a position of a center of gravity of a whole body by a body center of gravity location computing module that uses an output of the leg-attitude computing module and data from a chest horizontal accelerometer, a chest gyroscopic sensor, the hip horizontal accelerometer, and the hip gyroscopic sensor;

obtaining a vertical component of acceleration of the center of gravity of the whole body including the leg by a body center of gravity acceleration computing module that uses an output of the body center of gravity location computing module and data from the hip horizontal accelerometer, the hip vertical accelerometer and the hip gyroscopic sensor;

obtaining a vertical component of an actual ground reaction force acting on the leg by a ground reaction force estimating module, based on which leg or legs are in contact with the ground, the attitude of the leg, the position of the center of gravity of the whole body and the vertical component of acceleration of the center of gravity of the whole body including the leg, the ground reaction force estimating module using outputs of the leg-motion determining module, the leg-attitude computing module, the body center of gravity location computing module and the body center of gravity acceleration computing module;

obtaining an actual point of application of the ground reaction force by a module for estimating a point of application of a ground reaction force, based on the position of the center of gravity of the whole body, positions of ankle joints and positions of joints at front ends of feet under normal condition and based on positions of the joints at front ends of feet when going up or down stairs or going uphill or downhill, wherein it is determined based on positions of the ankle joints while the both legs are in contact with the ground whether the system is under normal condition or going up or down stairs or going uphill or downhill, the module for estimating a point of application of ground reaction force using outputs of the leg-attitude computing module and the body center of gravity location computing module;

obtaining moments acting around the joints of the leg, by a joint moment estimating module, using the vertical component of the ground reaction force acting on the leg at the point of application of the ground reaction force, the vertical components of forces acting on the joints of the leg and a term of the acceleration of gravity and without using the horizontal components of the forces acting on the joints of the leg and a term of acceleration except the term of the acceleration of gravity; and

obtaining the torques to be applied to the joints of the leg, by a gravity compensation torque computing module, based on the moments acting around the joints of the leg.

2. (Previously Presented) A method according to claim 1, wherein in the step of determining which leg or legs are in contact with the ground, the determination is made based on a value of the vertical component of acceleration of a hip measured by a hip accelerometer.

3. (Previously Presented) A method according to claim 1, wherein the step of determining which leg or legs are in contact with the ground is performed using foot switches instead of the leg-motion determining module.

4. (Cancelled)

5. (Currently Amended) A method according to claim [[4]] 1, wherein in the step of obtaining a point of application of the ground reaction force, the point is obtained further using information from a foot switch.

6. (Previously Presented) A method according to claim 1 wherein the vertical component of acceleration of the center of gravity of the whole body is obtained based on the center of gravity of the whole body obtained by the body center of gravity location computing module and a reference acceleration obtained by a reference acceleration measuring module.

7. (Previously Presented) A method according to claim 1 wherein in the step of obtaining moments acting around the joints of the leg, at first the vertical component of a force acting on and a moment acting around ~~the~~ a knee joint of ~~the~~ a shin, are obtained using the vertical component of the ground reaction force acting on the shin at the point of application of the ground reaction force and a term of acceleration of gravity and without using the horizontal component of the ground reaction force and a term of acceleration except the term of the acceleration of gravity and then the vertical component of a force acting on and a moment acting around a hip joint of the thigh are obtained using the vertical component of a force acting on and a moment acting around a knee joint of the thigh and a term of the acceleration of gravity without using the horizontal component of the force

acting on the knee joint and a term of acceleration except the term of the acceleration of gravity.

8. (Previously Presented) A method for obtaining in real time moments acting around joints of a leg of a biped walking system, the method being performed by modules and stored in a processor system and comprising the steps of:

determining which leg or legs are in contact with the ground by a leg-motion determining module that uses data from a hip vertical accelerometer;

obtaining an attitude of the leg by a leg-attitude computing module that uses data from a hip horizontal accelerometer, a hip gyroscopic sensor and joint angle sensors;

obtaining a position of a center of gravity of a whole body by a body enter of gravity location computing module that uses an output of the leg-attitude computing module and data from a chest horizontal accelerometer, a chest gyroscopic sensor, the hip horizontal accelerometer and the hip gyroscopic sensor;

obtaining a vertical component of acceleration of the center of gravity of the whole body including the leg by a body center of gravity acceleration computing module that uses an output of the body center of gravity location computing module and data from the hip horizontal accelerometer, the hip vertical accelerator and the hip gyroscopic sensor;

obtaining a vertical component of an actual ground reaction force acting on the leg by a ground reaction force estimating module based on which leg or legs are in contact with the ground, the attitude of the leg, the position of the center of gravity of the whole body and the vertical component of acceleration of the center of gravity of the whole body including the leg and the attitude of the leg, the ground reaction force estimating module using outputs of the leg-motion determining module, the leg-attitude computing module, the body center of gravity location computing module and the body center of gravity acceleration computing module;

obtaining an actual point of application of the ground reaction force by a module for estimating a point of application of ground reaction force, based on the position of the center of gravity of the whole body, leg attitudes and whether the system is under normal condition or going up or down stairs or going uphill or downhill, the module for estimating a point of application of ground reaction force using outputs of the leg-attitude computing module and the body center of gravity location computing module; and

obtaining moments acting around the joints of the leg, by a joint moment estimating module, using the vertical component of the ground reaction force acting on the leg at the point of application of the ground reaction force, the vertical components of forces acting on the joints of the leg and a term of the

acceleration of gravity and without using the horizontal components of the forces acting on the joints of the leg and a term of acceleration except the term of the acceleration of gravity.

9-12. (Cancelled)

13. (Previously Presented) A method according to claim 8, wherein the step of determining which leg or legs are in contact with the ground is performed using foot switches, instead of the leg-motion determining module.